

NOTES ON FUNGI.—The great drought which extended throughout Maryland in June and July, 1879, was discouraging to the collector of Fungi. Very few Agarics appeared, and the Boleti, with the exception of a few stunted forms, were not represented. Even in eastern Maryland, where the atmosphere is humid, the land low—woods often in swamps—plains intersected by narrow streams and broad rivers—there was a like scarcity of plants.

For the past four years certain species of fungi have been plentiful in nearly all woods within the distance of thirty miles from Baltimore. In June and July, 1877, likewise in 1878, the woods near Lutherville, Baltimore county, was adorned with beautiful forms and glowing colors. This profusion continued at intervals until September, a few coming as late as November.

The first and only perfect plant I collected in June, 1879, was *A. (Coprinus) micaceus*, Fr. It had chosen a low situation on a lawn that was kept constantly watered with a hose. In this way it obtained sufficient moisture to reach perfection. The pileus was ovate, pale ochraceous or cinereous, $1\frac{1}{2}$ –2 inches broad; two were covered with micaceous granules, the rest were smooth; margin deeply striate, nearly plicate; lamellæ, at first white, turning to black; deliquescent; stipe hollow, white, silky; spores .0003 x .00035 of an inch long, .0003 of an inch broad; black; plant caespitose. On the day that I found this Agaric, I asked a laboring man if he had seen any “Frog stools” in that section? He looked at me earnestly, repeating: “Frog stools! Why, they isn’t come up yet. What does anybody want with them pison things? You’ll pison yourself to death!” A few days after this I met with the same man, and was greeted with the query: “Found any frog stools, yet?” When I replied in the negative, he instantly said: “An’ it’s a blessed thing you can’t find ’em! Better let frog stools alone! That’s my advice to everybody.” When turning to walk off, one of my companions heard him remark in an under tone: “Poor thing; crazy, certain sure. Clean gone mad!”

During the great drought in July I met with *Boletus strobilaceus*, Scop., growing solitary upon the summit of a high embankment. Considering the parched and slippery grass that one had to pass over, it looked like a break neck excursion to attempt to reach it; but with the aid of two stout sticks I succeeded in gaining the eminence. The plant was perfect in all its parts, with a pileus 2 inches broad. The wonder was how a spore could germinate in soil that was apparently without moisture; but so it was. In very wet seasons this fungus often attains 10 inches across pileus. In the latter part of July, *A. (Lentinus) lepideus*, Fr., appeared in profusion on an old stump in Druid Hill Park, near Baltimore. The stipes were scaly, rooting below and variously branched; each branch bore a perfect pileus 2–4 inches broad, mostly convex, white, covered with small, pale brown scales; lamellæ white, decurrent; spores .00026 x .0003 of an inch in diameter. *A. (Amanita) strobiliformis*, Fr., appeared in Druid Hill Park about the same time. This is a majestic plant with a pileus 8–9 inches broad, dirty white cinerous and even ochraceous, covered with persistent warts not unlike the scales on a small pine cone; lamellæ

white to cream color; stipe 6-7 inches high, 1-2 inches thick, floccoso-squamose, bulbous, rooting, bulbs large and conical, extending 6-8 inches below the surface, ring large, lacerated, volva short, encircling the bulb like a frill, lacerated at margin; odor delightful, somewhat resembling that of our edible *A. campestris*, but more powerful; the aroma from the bulb is even greater than from the pileus; spores .00057 x .00035 inch, plant gregarious; open places in woods. One more plant, *Zylaria polymorpha*, Grev., which grew on an old stump at Druid Hill Park, completed the collection made in June and July, 1879.

The heavy rains of August brought Agarics and Boleti in both sections of the State, but at no time were they so plentiful as in past years, neither did they continue later than the first week in September, in consequence of a second drought. Possibly, if one had explored eastern Maryland extensively, new and different forms might have been discovered, but with the exception of *Panus strigosus*, B. & C., found there only, the flora of the two sections was precisely the same, except that the plants from eastern Maryland were generally larger. *A. (Amanita) muscarius*, L., was remarkably beautiful, pileus 8-9 inches broad, canary yellow, covered with pale ochraceous warts; margin striate; lamellæ white; stipe 6-7 inches thick, bulbous; volva broken up skirting the bulb in large, heavy flakes; ring large; fugaceous; spores .00026 x .00032 inch. In western Maryland this plant was scarce, dwarfed in size, and not to be found in woods it occupied in 1878. The pileus varies in color from ochraceous brown to canary yellow; the spores were also slightly smaller, .00018 x .00032 inch. *A. (Amanita) rubescens*, Pers., also a very handsome plant, had a pileus 8 inches broad, dark red to sienna red, covered with brown warts, margin striate; lamellæ white; stipe 7-8 inches high, bulbous, almost fringed with red scales; spores .00022 x .00032 inch. In western Maryland the stipes were without one exception clothed with red scales, not marked or streaked with red as heretofore; pileus 4-5 inches across; stipe 3-4 inches high; spores .00018 x .00032 inch. The flesh in all turned red when cut or bruised, but this is not constant; very often the flesh is white and unchanging. *A. (Amanita) vaginatus*, Bull., from eastern Maryland, was unusually large and beautiful; the pileus measured 6-7 inches across, more or less studded with scales at disk, not persistent, mouse gray, margin deeply and beautifully striate; lamellæ white, striped with a cottony substance; stipe 6-7 inches high, sericeo squamulose, hollow or stuffed, volva sheath like; spores .00032 x .00040 inch. The easy splitting of the stipe longitudinally seems to be a constant character in the fungus. In western Maryland, *A. vaginatus* rarely measures more than 3-5 inches across pileus, variable in color, mouse gray or various shades of slate color, sometimes white; lamellæ with or without the cottony stuffing; pileus with or without scales. *A. (Amanita) niidus* Fr., was large in both sections of the State, with a pileus 6-8 inches broad, white with a tinge of umber, deepened at disk, covered with pale cinereous warts; margin not deeply striate; lamellæ white, stipe 4-5 inches high, solid, squamose, attenuated upwards, bulbous at base, ring fugaceous;

spores .00024 x .00032 inch. *A. (Amanita) solitarius*, Bull., was another fine looking Agaric; the pileus measured 6-7 inches across, covered with warts more or less erect at disk and tinged with ochre; lamellæ white or cream color; stipe solid, unequal, squamose, and even imbricated; bulb very large, rooting below, ring torn. This fungus has always appeared solitary until last summer, when I found two growing very near each other. The *Lactarii* were variable in size. *Lactarius insulcus*, Fr., pileus 4-7 inches broad, margin sometimes distinctly striate, then faintly striate, again without striæ; at times faintly zoned, then plainly zoned, then zoneless; color various shades of yellow, often buff color; lamellæ concolorous; stipe stuffed or hollow, pale shade of yellow; spores .00032 of an inch in diameter, milk white and plentiful; taste extremely acrid. The stipes of several of these plans were lacunose. The *Russulæ* from eastern Maryland were generally large. *R. virescens*, Fr., came with a pileus as large as an ordinary breakfast plate, metallic green, varying in depth of color, more or less covered with patches or scales from green to ochraceous green and even yellow; margin striate all the way round, then only at intervals; lamellæ white, brittle, more or less forked; stipe equal, short, stuffed, white; spores .00028 x .0003 of an inch in diameter; taste pleasant. This plant appears in western Maryland with the same variations, but smaller. *R. emetica*, Fr., measured 8 inches across pileus, variously shaded from bright red to sage color; lamellæ white; stipe white stained with red; spores .00036 of an inch in diameter; taste acrid. *R. alutacea*, Fr., was about the same size, with a red pileus; buff colored lamellæ and half colored spores; very mild and pleasant to taste. *R. rubra*, Fr., a remarkably handsome plant, the ornament of the woods wherever it grows, with its beautiful, glossy red or deep pink pileus, white lamellæ, white or pinkish stipe, and acrid taste, was large and plentiful.

Boletus luridus, Schæff, from both sections of the State, came glowing with color. Pileus 5-6 inches broad, bright red or scarlet shaded into bright yellow at margin, excessively viscid, shining as if varnished, convex or expanded; pores convex, at times adnexed, again nearly free, again free, dark brownish red, bright yellow with red around the orifices, then bright orange color; stipes red with brown reticulations, again reticulated with carmine. Heretofore the pileus of this fungus has been slightly tomentose, dark reddish brown, pinkish, and brick-red; pores free, yellow, with red around the orifices; spores .0006 x .00038 inch, dark olivaceous green. The flesh of this plant, when eaten into by insects, does not change to blue. I have found this to be the rule without one exception. In eastern Maryland I collected a curious *Boletus*, the name of which I do not yet know. Two plants seem undecided whether to remain Boleti or to become Agarics. One was decidedly lamellated on one side nearly to the margin, the other lamellated only at intervals. The same plant appeared about the same time in western Maryland, but lamellated only as the pores reached the stipe. Two specimens of *Polyporus applanatus*, Fr., I found growing in short grass about ten yards from an oak tree. The pileus of one plant measured 4 the other 5 inches across.

There was evidently a struggle to adapt themselves to their new habitat. There were neither roots or dead wood for them to adhere to, and I concluded that some severe storm had separated them from the tree and placed them in their new position.

The above plants comprise only a few out of the large number I collected in 1879. Many that appeared in profusion during the Summer and Autumn of 1878, were not with us in 1879. Perhaps the most conspicuous amongst the missing for their singular beauty as well as for their offensive odor were *Phallus duplicatus*, Bosc., and *Phallus impudicus*, L. I found *Phallus duplicatus*, in the early part of June. Three plants in three different periods of growth were close beside each other in an open place in the woods. The first form of this fungus is that of a puff ball, containing a tremulous mass of gelatine. Within this is *P. duplicatus*, with its rudimentary pileus and stipe preparing to burst through the volva. In the second period of growth it escapes the volva sufficiently to show the pileus, together with a portion of the stipe around which hangs a white reticulated frill looking like a beautiful lace drapery; pileus 6-7 inches across, campanulate, lacunose and distinctly marked with variously formed reticulations; a portion of gelatine clings to it, which, from the action of air and light often turns amber color, giving a showy, transparent appearance. In the fully developed plant the external surface of the pileus rapidly passes into mucilage and drips away in deliquescent drops of a dark olivaceous green, almost black. The perforated apex is firmly attached to the stalk and bordered with a delicate edge of white or cream color. Beneath the pileus the stalk is conical and covered with a reticulated drapery, which adheres for the space of one inch, when it flows off and hangs down loosely like a white lace frill an inch or so below the pileus. There is attached to the apex a lengthened drop of gelatine, two inches long, which hangs within the cavity of the stalk and seems to furnish its internal lining with mucilage. The pileus is lined with a smooth white skin slightly viscid. The stalk is 10 inches high, 1-2 inches thick, white, looking like carved ivory, hollow, with a white, smooth, glossy, internal lining, externally covered with small and variously shaped cavities which extend to the internal lining, but do not penetrate it, forming a substance somewhat like the fine tissues in bone, cutting hard and brittle; exceedingly delicate at the base, and but for the volva which remains upright with its mass of gelatine, it would have nothing to support it. The volva is universal and composed of a strong, rough looking, tough skin, whose sole duty seems protection; within it, and extending to more than half its height, there is a partition or dividing wall of tough, thick white skin, this keeps the gelatine in place separating it from the stalk and holding it fast between the two walls.

Strange to say I drove six miles in a public conveyance with three of these plants closely covered in a basket, without hearing a remark upon the abominable odor. By the time I reached my place of destination the smell had increased to such an extent that the flies nearly devoured me, in their eagerness to get at the fungus. Worse than all there was an outcry through the house, one enquiring of the

other what the loathsome smell could be, and where it came from. Each moment was filled with anxiety, lest my precious fungus, for which I had already endured so much, might be seized and carried off before I finished dissecting it. The pileus was crowded with beetles, and judging from the eaten portion they must have relished it greatly for they had taken a hearty lunch. *Phallus impudicus*, which I found shortly afterward was equally offensive and attractive to flies and beetles.

While it is interesting to observe the variations in the color, size and configurations of certain species of fungi, it is equally so to note their absence from one locality, for an indefinite time, and perhaps their appearance in another. One is led to suspect that the spores either hibernate or are carried by the winds to far off sections like the seeds of some phænogamous plants; or there may be in some seasons an absence in certain qualities in soil and atmosphere requisite for their germination. In sections where no changes have been made, such as draining the soil, cleaning out woods, or cutting down trees, we are constantly missing plants for a period of one or more years as the following notes will show:

In 1877, *Lactarius volvum*, Fr., was plentiful from June to September, but very slender in form. In 1878, not so plentiful, but very large. In 1879, it left its old haunts and other plants took its place, though in some instances its place was unoccupied. *A. (Tricholoma) virescens*, Pk., was plentiful in 1877, but has never appeared since. *Boletus ornatipes*, Pk., as well as many other plants that one could not go amiss for in 1877, were rare in 1878, none in 1879. For three successive years I found *A. vaginatus*, in one spot, on or about the fifteenth of July; in 1878 it was missing, but appeared plentifully in a distant woods. *A. luccatus*, Scop., was scarce in 1877, mostly to be found on dead leaves and sticks. In 1878 it carpeted the woods in some places three yards in diameter; in 1879, not one was to be found in the same locality; it took a freak to visit a woods ten miles distant, and after having been small and unpretending in appearance it assumed the most beautiful and fantastic shapes, as well as the brightest colors; pileus 4-5 inches across, convex, umbilicate or deeply infundibuliform; lamellæ often bright reddish purple, with a deep flesh color or bright sienna-red pileus. *Fistulina hepatica*, Fr., has been rare for several years past, but last August old oak stumps as well as the projecting roots of oak trees, were crowded with it. At first sight it presented the most curious appearance, looking like large pieces of raw flesh or liver scattered about on the grass. It has a delightful acid taste. *Morchella esculenta*, Pers., and *Helvella crispa*, Fr., so plentiful in 1877, has not been seen since. That beautiful little plant *Cyathus vernicosus*, DC., which abounded in nearly all gardens in 1878, was absent in 1879. During some seasons when other species are so plentiful the *Trichogasters* are poorly represented. In 1876, *Geaster fimbriatus*, Fr., was abundant, but I have not found one plant since. In 1877, *Lycoperdon gemmatum*, Fr., crowded the woods in almost every section; one or two imperfect forms appeared in 1878,

none in 1879. *Lycoperdon cyathiforme*, Bosc., numerous and very large in 1877, has not been with us since. *Scleroderma vulgare*, Fr., plentiful in 1877, two imperfect forms in 1878, none in 1879.—M. E. BANNING.

NOTES ON SOME INTRODUCED PLANTS IN DALLAS COUNTY, TEXAS.—These are notes on most of the naturalized plants in this county.

Adonis autumnalis, L., was imported by the French colonists in 1855, and appears in many fields and along the roads.

Nasturtium officinale, R. Br., was first introduced about twenty years ago, but became common only within four or five years.

Capsella Bursa-pastoris, Moench, was seen for the first time in 1865, but has become quite a common weed.

Viola tricolor, L. var. *arvensis*, Ging., I am satisfied, is native. I have met it in large patches in remote woods and prairies, sometimes very far from settlements. The true *V. tricolor* has been naturalized in gardens and seems to be keeping its characters very constant. I believe the two may be considered good species.

Portulaca oleracea, L., is certainly native, although it has been considered by most of the botanists as an introduced species. It infests all cultivated fields. You may go 100 miles from civilization, break the prairie, and the second summer will be sure to see it covering your field. This year in traveling on the northwestern frontier, far from any settlement, I have met it growing in prairie dogs' villages, in company with the *P. pilosa* and *P. lanceolata*, both considered native species.

Tribulus maximus, L., was introduced about 1860.

Abutilon Avicennae, Gært., made its appearance about the same time.

Conia occidentalis, L., belongs to the same period.

Anthemis Cotula, L., dates from 1875, and since has been very common in the city of Dallas.

Impomea purpurea and *I. hederacea* are common in some fields, but I have not the date of their introduction.

Datura Tatula, L., is very common and was naturalized long ago.

Martynia proboscidea, Glox, is sparingly naturalized, but seems spontaneous in the West.

Verbena officinalis, L., is certainly native. It grows in all the sandy woods and wild praries. The roots are *positively* perennial, which does not agree with the description in the Synoptical Flora of Dr. Gray.

Marrubium vulgare, L., appears in the neighborhood of cattle and sheep lots after a few years of settlement.

Boerhaavia viscosa, Lag., was first seen in 1876; *B. stricta*, in 1879.

Rumex obtusifolia, L., seems perfectly at home in all damp places.

Chenopodium hybridum, *C. murale*, *C. ambrosioides* and *C. anthelminticum*, are more or less common, the last seeming perfectly indigenous.—J. REVERCHON.